

# Big quake to hit within 30 years?

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Article Launched: 04/14/2008 11:04:56 PM PDT

Southern California faces the virtual certainty that an earthquake of magnitude 6.7 or greater will rock the region within the next three decades, according to a newly updated statewide quake forecast released Monday.

Scientists estimate a 99.7 percent chance that a quake of such magnitude will strike in the next 30 years - with the odds highest in Southern California, according to the report by a group of agencies including the U.S. Geological Survey.

And the forecast estimates the likelihood of a magnitude 7.5 quake or greater in California over the next three decades is nearly 50 percent - and also more likely to occur in Southern California.

Results of such a quake could be devastating: The 1994 Northridge quake registered 6.7 - and left more than 70 dead, thousands injured and more than \$25 billion in damages.

"If you take an earthquake the size of Northridge we expect earthquakes of that size to occur somewhere in California at the rate of approximately one every five years," said Thomas Jordan, director of the Southern California Earthquake Center.

"In other words, if we translate that into the probability of having such an earthquake over the next 30 years, it's almost 100 percent."

The new forecast probabilities are the result of combining information from earthquake geology, seismology and by measuring precise locations on the Earth's surface.

The information will be used by decision makers to establish building codes, set earthquake insurance rates and prepare for disasters.

"Looking at the probabilities on specific faults, we found the fault that produces the highest likelihood of one of these earthquakes is the southern San Andreas - and in Northern California, it's the Hayward-Rogers Creek fault," said Ned Field, a U.S. Geological Survey geophysicist and chair of the group that developed the report.

"In general, we think the whole San Andreas in Southern California is capable of generating a large earthquake, although the southern part down by Coachella Valley has gone a longer period of time without an earthquake."

But even if the San Andreas ruptured in the Coachella Valley, Field said the Los Angeles basin could still be heavily affected.

"We ... know that large earthquakes can produce waves that propagate very efficiently and actually get enhanced by the deep sediments in the Los Angeles basin," he said.

"And so we think a large earthquake out there could actually produce quite a bit of damage in the Los Angeles region."

The potential impact on local hospitals is of particular concern, as the RAND Corp. recently estimated hospitals in California need more than \$130 billion to meet seismic standards mandated by 2030.

Jim Lott, executive vice president of the Hospital Association of Southern California, said most hospitals are now designed to withstand a magnitude 6.7 quake.

"The new earthquake standards will eventually require hospitals to be able to withstand an 8.5 magnitude earthquake and so we are working toward the 2020 and 2030 standards that will probably bring most hospitals up to those codes before there is a catastrophic event - to the extent that anyone can accurately predict when a catastrophic event is going to occur," Lott said.

The new study will also impact the cost of homeowners' earthquake insurance, and officials said they expect rates to change next spring.

"In some places, it will affect people more because the probabilities are up in those areas," said Tim Richison, chief financial officer of the California Earthquake Authority.

Forecasters aid the probability of a magnitude 6.7 or larger earthquake over the next 30 years striking the greater Los Angeles area is 67 percent. That compares to 63 percent in the San Francisco Bay Area.

For the entire state, the fault with the highest probability of generating a magnitude 6.7 earthquake or greater is the southern San Andreas at 59 percent over the next 30 years.

The new model does not estimate the likelihood of shaking that would be caused by any quakes, noting that even areas in the state with a low probability of fault ruptures could experience shaking and damage from distant but powerful quakes.

"This study will provide critical input into the development of seismic safety standards in building codes and the design of new structures," Jordan said.

"For example, in the Los Angeles area, we expect to have something like 50 buildings taller than 250 feet being built here over the next decade.

"This study provides the type of information that building designers need to make sure those structures are built safely."

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